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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/G 4/2
19305A GSRS, MISSILE NUMBER 1053, ROUND NUMBER V-35.(U)
MAY 79

UNCLASSIFIED

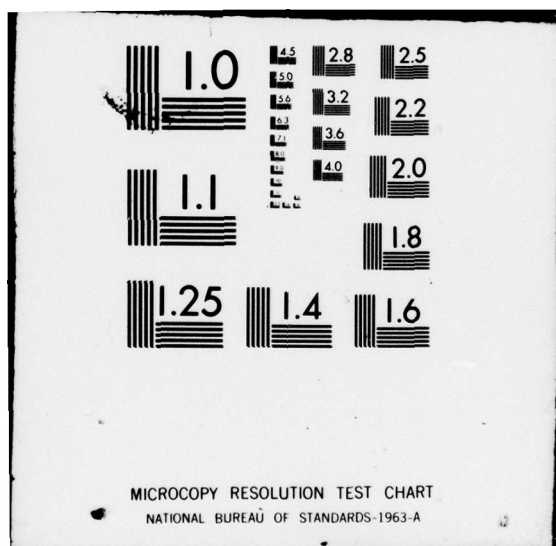
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| REPORT DOCUMENTATION PAGE | | READ INSTRUCTIONS BEFORE COMPLETING FORM |
|--|-----------------------|---|
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| 13. KEY WORDS (Continue on reverse side if necessary and identify by block number) 1. Ballistics 2. Meteorology 3. Wind | | |
| 14. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of 19305A GSRS, Missile No. 1053, Round No. V-35, are presented in tabular form. | | |

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| | |
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| DDC TAB | <input type="checkbox"/> |
| Unannounced | <input type="checkbox"/> |
| Justification | |
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| Distribution/ | |
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| Dist | Avail and/or special |
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INTRODUCTION

19305A GSRS, Missile Number 1053, Round Number V-35, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1125 MDT, 31 May 1979. The scheduled launch time was 1125 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations

a. Surface

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

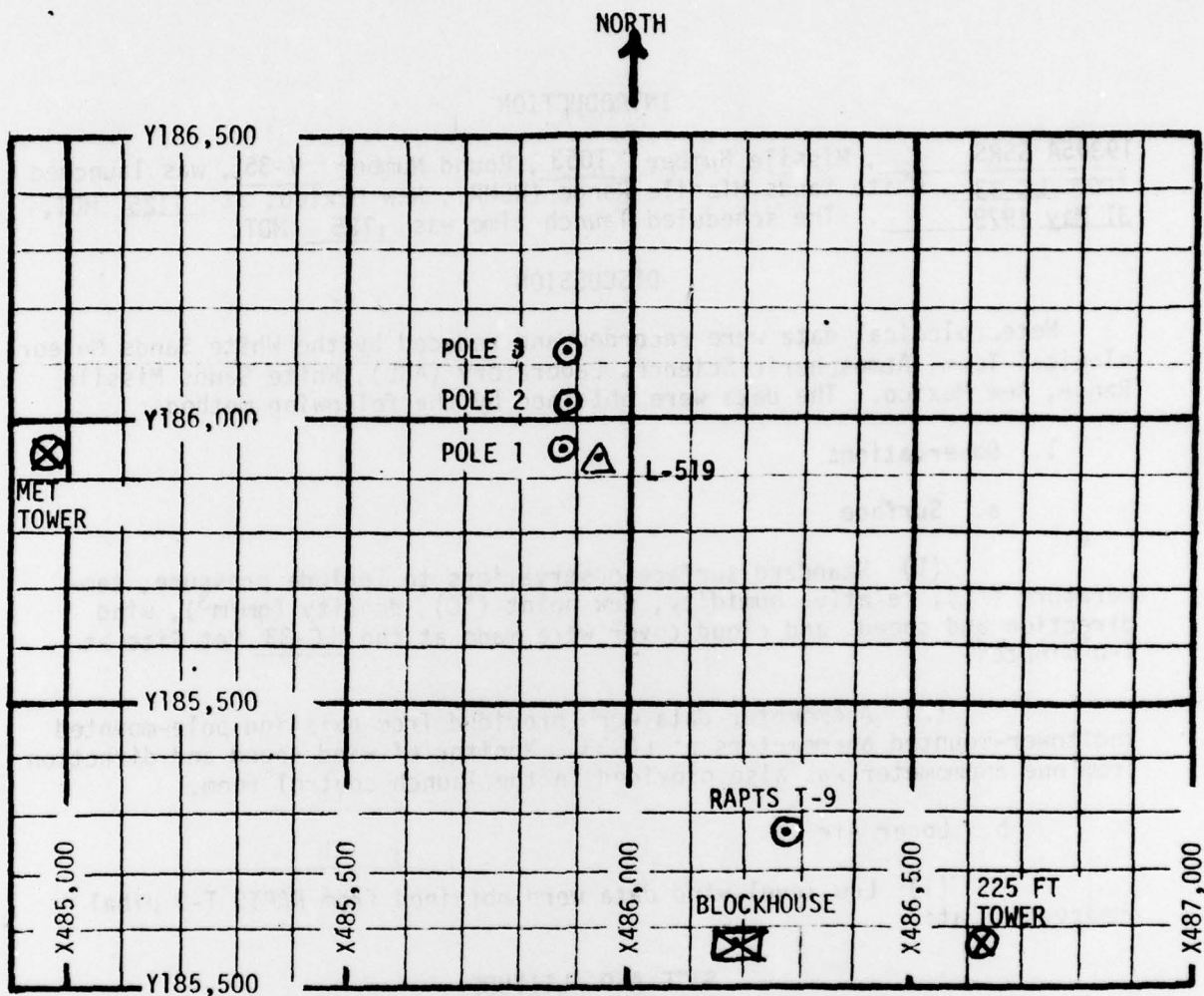
SITE AND ALTITUDE

LC-33 1020 meters (30-meter increments) 1225 MDT

(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 62,500 feet in 500-foot increments.

SITE AND TIME

SMR 1125 MST



1. MET TOWER - 4 Bendix Model T-120 Anemometers at 12 ft, 62 ft, 102 ft and 202 ft with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
 - (a) Pole #1 - 38.7 ft
 - (b) Pole #2 - 53.0 ft
 - (c) Pole #3 - 83.6 ft
3. 225 FT WIND TOWER - 5 Bendix Model T-120 Anemometers at 35 ft, 88 ft, 128 ft, 168 ft and 200 ft with 5 X-Y visual indicators in Blockhouse.
4. RAPTS T-9 - Radar Automatic Pilot-Balloon Tracking System T-9 Radar

TABLE 1. SURFACE OBSERVATIONS TAKEN AT 1125 MDT,
31 MAY 1979 AT LC-33, 19305A GSRS,
MISSILE NO. 1053, ROUND NO. V-35

| | | |
|-------------------|---------|-------------------|
| ELEVATION | 3977.30 | FT/MSL |
| PRESSURE | 878.1 | MBS |
| TEMPERATURE | 29.5 | °C |
| RELATIVE HUMIDITY | 27 | % |
| DEW POINT | 8.5 | °C |
| DENSITY | 1004 | GM/M ³ |
| WIND SPEED | 02 | MPH |
| WIND DIRECTION | 280 | DEGREES |
| CLOUD COVER | 1 | Cu |
| CLOUD COVER | 1 | Cb |

TABLE 2. LC-33 FIXED POLE ANEMOMETER-MEASURED WINDS

| POLE #1 | | | POLE #2 | | | POLE #3 | | |
|---------------|------------|--------------|---------------|------------|--------------|---------------|------------|--------------|
| T-TIME SEC | DIR DEG | SPEED MPH | T-TIME SEC | DIR DEG | SPEED MPH | T-TIME SEC | DIR DEG | SPEED MPH |
| -30 | 169 | 01 | -30 | 128 | 05 | -30 | 159 | 04 |
| -20 | 143 | 01 | -20 | 099 | 05 | -20 | 160 | 04 |
| -10 | 175 | 01 | -10 | 200 | 06 | -10 | 159 | 04 |
| 0.0 | 175 | 04 | 0.0 | 218 | 10 | 0.0 | 165 | 03 |
| +10 | 170 | 02 | +10 | 211 | 07 | +10 | 163 | 03 |

Type 19305A GSRS, Missile No. 1053, Round No. V-35 launched
from LC-33 on 31 May 1979 at 1225 MDT.

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft. AGL

NOTE: Wind directions are referenced to the firing azimuth _____
or true north true north.

TABLE 3. LC-33 METEOROLOGICAL TOWER ANEMOMETER-MEASURED WINDS (202 FT. TOWER)

| LEVEL #1 12 ft. | | | LEVEL #2 62 ft. | | |
|---------------------|------------|--------------|---------------------|------------|--------------|
| T-TIME SEC | DIR DEG | SPEED MPH | T-TIME SEC | DIR DEG | SPEED MPH |
| -30 | 170 | 03 | -30 | 147 | 05 |
| -20 | 146 | 04 | -20 | 133 | 04 |
| -10 | 148 | 04 | -10 | 139 | 04 |
| 0.0 | 155 | 04 | 0.0 | 145 | 04 |
| +10 | 147 | 03 | +10 | 145 | 04 |
| LEVEL #3 102 ft. | | | LEVEL #4 202 ft. | | |
| T-TIME SEC | DIR DEG | SPEED MPH | T-TIME SEC | DIR DEG | SPEED MPH |
| -30 | 156 | 02 | -30 | 129 | 03 |
| -20 | 155 | 02 | -20 | 144 | 03 |
| -10 | 161 | 02 | -10 | 151 | 04 |
| 0.0 | 162 | 02 | 0.0 | 093 | 01 |
| +10 | 170 | 02 | +10 | 127 | 01 |

WTSM Coordinates: X484,982.64 Y185,957.73 H3983.00 (base)

Type 19305A GSRS, Missile No. 1053, Round No. V-35 launched
from LC-33 on 31 May 1979 at 1225 MDT.

NOTE: Wind directions are referenced to the firing azimuth _____
or true north true north.

TABLE 4. PILOT-BALLOON-MEASURED WIND DATA (30-METER INCREMENTS)

| HEIGHT METERS AGL | DIRECTION DEGREES | SPEED MPH |
|-------------------------|----------------------|--------------|
| SFC | 280 | 2.0 |
| 30 | 343 | 1.0 |
| 60 | Calm | Calm |
| 90 | 357 | 1.5 |
| 120 | 308 | 3.0 |
| 150 | 308 | 4.0 |
| 180 | 308 | 5.0 |
| 210 | 325 | 4.5 |
| 240 | 342 | 4.0 |
| 270 | 006 | 4.5 |
| 300 | 029 | 4.5 |
| 330 | 044 | 4.5 |
| 360 | 058 | 4.5 |

| HEIGHT METERS AGL | DIRECTION DEGREES | SPEED MPH |
|-------------------------|----------------------|--------------|
| 390 | 055 | 6.5 |
| 420 | 052 | 8.0 |
| 450 | 063 | 7.5 |
| 480 | 074 | 6.5 |
| 510 | 076 | 4.5 |
| 540 | 077 | 2.0 |
| 570 | 093 | 4.0 |
| 600 | 109 | 5.5 |
| 630 | 042 | 4.0 |
| 660 | 335 | 2.0 |
| 690 | 017 | 2.5 |
| 720 | 058 | 3.0 |
| 750 | 047 | 4.5 |

Release Point Coordinates (WSTM): X486,037.24 Y486,037.24 H3977.30

Released from LC-33 on 31 May 1979 at 1225 MDT.Type 19305A GSRS, Missile No. 1053, Round No. V-35 launched from LC-33 on 31 May 1979 at 1225 MDT.NOTE: Wind directions are referenced to the firing azimuth _____ or true north true north.

| HEIGHT METERS AGL | DIRECTION DEGREES | SPEED MPH |
|-------------------------|----------------------|--------------|
| 780 | 036 | 5.5 |
| 810 | 016 | 4.0 |
| 840 | 355 | 2.5 |
| 870 | 026 | 2.0 |
| 900 | 056 | 1.5 |
| 930 | 040 | 2.5 |
| 960 | 024 | 3.5 |
| 990 | 035 | 3.5 |
| 1020 | 045 | 3.0 |
| 1050 | | |
| 1080 | | |
| 1110 | | |
| 1140 | | |
| 1170 | | |
| 1200 | | |
| 1230 | | |
| 1260 | | |
| 1290 | | |
| 1320 | | |
| 1350 | | |
| 1380 | | |
| 1410 | | |

| HEIGHT METERS AGL | DIRECTION DEGREES | SPEED MPH |
|-------------------------|----------------------|--------------|
| 1440 | | |
| 1470 | | |
| 1500 | | |
| 1530 | | |
| 1560 | | |
| 1590 | | |
| 1620 | | |
| 1650 | | |
| 1680 | | |
| 1710 | | |
| 1740 | | |
| 1770 | | |
| 1800 | | |
| 1830 | | |
| 1860 | | |
| 1890 | | |
| 1920 | | |
| 1950 | | |
| 1980 | | |
| 2010 | | |
| 2040 | | |
| 2070 | | |

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

SIGNIFICANT LEVEL DATA
1510060161
S M R

STATION ALTITUDE 3997.30 FEET MSL
31 MAY 79
ASCENSION NO. 161

| PRESSURE | GEOMETRIC ALTITUDE | TEMPERATURE AIR | DEWPOINT | REL. HUM. |
|-----------|--------------------|-----------------|------------|-----------|
| MILLIBARS | MSL FEET | DEGREES | CENTIGRADE | PERCENT |
| 876.9 | 3997.3 | 29.7 | 9.8 | 29.0 |
| 864.3 | 4413.0 | 25.6 | 9.8 | 28.0 |
| 850.0 | 4698.5 | 24.6 | 4.4 | 27.0 |
| 810.3 | 6266.0 | 20.6 | 11.0 | 54.0 |
| 777.6 | 7422.7 | 18.0 | -2.5 | 24.0 |
| 700.0 | 10341.0 | 9.8 | -3.5 | 39.0 |
| 592.3 | 14899.8 | -2.9 | -8.9 | 83.0 |
| 522.8 | 18016.2 | -9.3 | -31.1 | 15.0 |
| 500.0 | 19144.4 | -11.8 | -33.1 | 15.0 |
| 469.3 | 20784.4 | -14.6 | -31.7 | 22.0 |
| 403.8 | 24058.1 | -22.4 | -37.8 | 23.0 |
| 400.0 | 24642.1 | -23.3 | -39.9 | 20.0 |
| 374.6 | 26193.3 | -26.8 | -44.9 | 16.0 |
| 317.6 | 30037.9 | -36.7 | -49.4 | 25.0 |
| 300.0 | 31341.1 | -40.7 | | |
| 282.8 | 32655.6 | -43.9 | | |
| 250.0 | 35250.6 | -49.1 | | |
| 255.8 | 36791.2 | -51.5 | | |
| 200.0 | 40107.0 | -54.7 | | |
| 191.3 | 41043.5 | -55.3 | | |
| 187.3 | 41498.5 | -54.6 | | |
| 161.3 | 44566.6 | -55.0 | | |
| 153.0 | 45145.7 | -59.4 | | |
| 128.3 | 49371.9 | -60.4 | | |
| 104.6 | 53454.5 | -68.2 | | |
| 100.0 | 54364.7 | -67.5 | | |
| 91.8 | 56097.9 | -66.9 | | |
| 88.8 | 56753.9 | -64.7 | | |
| 75.3 | 59276.6 | -66.9 | | |
| 70.0 | 61516.9 | -65.9 | | |
| 65.2 | 62956.0 | -61.5 | | |

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GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

UPPER AIR DATA
1510060101
S M R

STATION ALTITUDE 3997.30 FEET MSL
31 MAY 79 1125 HRS MST
ASCENSION NO. 101

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GM/CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION (TN) DEGREES | SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|--|----------------------|------------------------------|----------------------------|--|----------------|---------------------------|
| 3997.3 | 876.9 | 29.7 | 29.0 | 1003.4 | 679.7 | .0 | .0 | 1.000274 |
| 4000.0 | 876.8 | 29.7 | 29.0 | 1003.4 | 679.7 | 27.9 | .0 | 1.000274 |
| 4500.0 | 861.8 | 25.4 | 27.8 | 1001.6 | 674.5 | 27.9 | 1.2 | 1.000262 |
| 5000.0 | 847.0 | 24.3 | 29.0 | 988.1 | 673.2 | 27.9 | 2.4 | 1.000258 |
| 5500.0 | 832.3 | 22.8 | 38.9 | 974.8 | 671.9 | 27.9 | 3.6 | 1.000264 |
| 6000.0 | 817.9 | 21.4 | 48.7 | 961.8 | 670.5 | 27.2 | 3.6 | 1.000269 |
| 6500.0 | 803.6 | 20.1 | 47.9 | 949.7 | 668.9 | 24.8 | 2.3 | 1.000261 |
| 7000.0 | 789.5 | 19.0 | 35.0 | 938.1 | 667.1 | 24.9 | 1.2 | 1.000243 |
| 7500.0 | 775.6 | 17.8 | 24.4 | 926.5 | 665.3 | 105.6 | .3 | 1.000229 |
| 8000.0 | 761.8 | 16.4 | 27.0 | 914.3 | 663.7 | 145.6 | 2.0 | 1.000226 |
| 8500.0 | 748.1 | 15.0 | 29.5 | 902.2 | 662.1 | 143.7 | 4.1 | 1.000224 |
| 9000.0 | 734.7 | 13.6 | 32.1 | 890.4 | 660.5 | 140.3 | 6.6 | 1.000221 |
| 9500.0 | 721.6 | 12.2 | 34.7 | 878.8 | 658.9 | 145.3 | 7.8 | 1.000219 |
| 10000.0 | 708.7 | 10.8 | 37.2 | 867.3 | 657.3 | 151.3 | 8.7 | 1.000216 |
| 10500.0 | 695.8 | 9.4 | 39.8 | 855.9 | 655.8 | 159.6 | 8.7 | 1.000213 |
| 11000.0 | 682.9 | 8.0 | 42.5 | 844.2 | 654.0 | 169.8 | 8.8 | 1.000210 |
| 11500.0 | 670.3 | 6.6 | 45.1 | 832.7 | 652.4 | 167.7 | 8.6 | 1.000207 |
| 12000.0 | 657.8 | 5.2 | 47.8 | 821.4 | 650.7 | 163.8 | 8.7 | 1.000204 |
| 12500.0 | 645.6 | 3.8 | 50.4 | 810.2 | 649.1 | 170.3 | 9.5 | 1.000200 |
| 13000.0 | 633.6 | 2.4 | 53.0 | 799.3 | 647.4 | 178.7 | 10.6 | 1.000197 |
| 13500.0 | 621.9 | 1.0 | 55.7 | 788.5 | 645.7 | 190.7 | 12.4 | 1.000194 |
| 14000.0 | 610.3 | .4 | 58.3 | 777.9 | 644.1 | 200.6 | 15.1 | 1.000191 |
| 14500.0 | 599.0 | .4 | 60.9 | 767.4 | 642.4 | 208.0 | 18.4 | 1.000188 |
| 15000.0 | 587.8 | .3 | 61.3 | 756.9 | 640.6 | 212.8 | 21.4 | 1.000184 |
| 15500.0 | 576.5 | .1 | 53.6 | 745.4 | 639.5 | 219.3 | 24.3 | 1.000179 |
| 16000.0 | 565.4 | .2 | 46.0 | 734.1 | 638.1 | 219.5 | 26.4 | 1.000174 |
| 16500.0 | 554.5 | .2 | 39.3 | 722.9 | 636.8 | 222.4 | 28.3 | 1.000169 |
| 17000.0 | 543.8 | .2 | 30.6 | 711.9 | 635.5 | 224.5 | 28.9 | 1.000164 |
| 17500.0 | 533.4 | .2 | 22.9 | 701.1 | 634.2 | 228.6 | 29.4 | 1.000160 |
| 18000.0 | 523.1 | .3 | 15.2 | 690.4 | 633.0 | 230.6 | 30.4 | 1.000156 |
| 18500.0 | 512.9 | .4 | 15.0 | 679.7 | 631.6 | 234.3 | 31.5 | 1.000154 |
| 19000.0 | 502.9 | .5 | 15.0 | 669.3 | 630.3 | 238.5 | 31.8 | 1.000151 |
| 19500.0 | 492.9 | .5 | 16.5 | 658.5 | 629.1 | 238.5 | 31.2 | 1.000149 |
| 20000.0 | 483.2 | .4 | 18.7 | 647.8 | 628.0 | 239.9 | 26.5 | 1.000147 |
| 20500.0 | 473.6 | .3 | 20.8 | 637.2 | 626.9 | 240.1 | 22.9 | 1.000144 |
| 21000.0 | 464.2 | .3 | 22.1 | 626.9 | 625.7 | 238.9 | 21.3 | 1.000142 |
| 21500.0 | 454.9 | .3 | 22.2 | 617.1 | 624.5 | 231.4 | 21.7 | 1.000140 |
| 22000.0 | 445.7 | .6 | 22.4 | 607.4 | 623.1 | 225.1 | 23.6 | 1.000137 |
| 22500.0 | 436.7 | .8 | 22.5 | 597.9 | 621.4 | 220.8 | 24.7 | 1.000135 |
| 23000.0 | 427.9 | .9 | 22.7 | 588.5 | 620.0 | 218.5 | 25.5 | 1.000133 |

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STATION ALTITUDE 3997-30 FEET MSL
31 MAY 79 1125 HPS MST
ASLENSION NO. 151

UPPER AIR DATA
1510060163
S M R

GEODETTIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | AIR TEMPERATURE DEGREES CENTIGRADE | TEMPERATURE DEWPOINT DEGREES CENTIGRADE | REL. HUM. PERCENT | DENSITY GRAMS PER CUBIC METER | SPEED OF SOUND KNOTS | WIND DATA DIRECTION DEGREES (TN) | WIND DATA SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|---|----------------------|-------------------------------------|----------------------------|--|-----------------------------|---------------------------|
| 2350.0 | 419.2 | -21.1 | -36.7 | 22.8 | 579.3 | 618.6 | 216.1 | 26.3 | 1.000131 |
| 2400.0 | 410.8 | -22.3 | -37.7 | 23.0 | 570.3 | 617.1 | 216.4 | 27.1 | 1.000128 |
| 2450.0 | 402.4 | -23.1 | -39.4 | 20.7 | 560.4 | 616.1 | 219.6 | 27.1 | 1.000126 |
| 2500.0 | 394.1 | -24.1 | -41.0 | 19.1 | 551.1 | 614.8 | 224.3 | 27.0 | 1.000124 |
| 2550.0 | 385.9 | -25.2 | -42.6 | 17.8 | 542.2 | 613.5 | 227.1 | 27.2 | 1.000122 |
| 2600.0 | 377.9 | -26.4 | -44.2 | 16.5 | 533.4 | 612.1 | 229.1 | 27.5 | 1.000120 |
| 2650.0 | 370.0 | -27.6 | -45.2 | 16.7 | 524.8 | 610.5 | 229.1 | 27.1 | 1.000118 |
| 2700.0 | 362.1 | -28.9 | -45.6 | 17.9 | 516.3 | 608.9 | 229.6 | 26.9 | 1.000116 |
| 2750.0 | 354.4 | -30.2 | -46.2 | 19.1 | 508.1 | 607.3 | 231.5 | 26.9 | 1.000114 |
| 2800.0 | 346.9 | -31.4 | -46.7 | 20.2 | 499.9 | 605.7 | 231.8 | 27.7 | 1.000112 |
| 2850.0 | 339.5 | -32.7 | -47.4 | 21.4 | 491.9 | 604.1 | 231.2 | 29.2 | 1.000110 |
| 2900.0 | 332.3 | -34.0 | -48.0 | 22.6 | 484.1 | 602.5 | 229.6 | 29.9 | 1.000108 |
| 2950.0 | 325.2 | -35.3 | -48.7 | 23.7 | 476.3 | 600.8 | 227.0 | 30.1 | 1.000107 |
| 3000.0 | 318.5 | -36.6 | -49.4 | 24.9 | 468.6 | 599.2 | 226.5 | 29.4 | 1.000105 |
| 3050.0 | 311.4 | -38.1 | -54.3 | 16.1** | 461.5 | 597.3 | 225.8 | 28.3 | 1.000103 |
| 3100.0 | 304.6 | -39.7 | -62.6 | 6.5** | 454.4 | 595.3 | 225.2 | 27.5 | 1.000101 |
| 3150.0 | 297.9 | -41.1 | | | 447.1 | 593.5 | 224.0 | 26.9 | 1.000100 |
| 3200.0 | 291.5 | -42.3 | | | 439.5 | 591.9 | 223.8 | 26.9 | 1.000098 |
| 3250.0 | 284.8 | -43.5 | | | 432.0 | 590.3 | 223.0 | 27.3 | 1.000096 |
| 3300.0 | 278.4 | -44.6 | | | 424.5 | 589.0 | 223.4 | 28.1 | 1.000094 |
| 3350.0 | 272.1 | -45.5 | | | 416.4 | 587.8 | 225.2 | 29.5 | 1.000093 |
| 3400.0 | 265.9 | -46.5 | | | 408.7 | 585.5 | 227.0 | 31.2 | 1.000091 |
| 3450.0 | 259.9 | -47.5 | | | 401.2 | 585.5 | 231.4 | 34.1 | 1.000089 |
| 3500.0 | 254.0 | -48.4 | | | 393.8 | 584.0 | 234.7 | 37.2 | 1.000088 |
| 3550.0 | 248.3 | -49.3 | | | 386.5 | 582.8 | 235.7 | 37.7 | 1.000086 |
| 3600.0 | 242.6 | -50.2 | | | 379.0 | 581.7 | 236.6 | 38.2 | 1.000084 |
| 3650.0 | 237.0 | -51.0 | | | 371.7 | 580.6 | 236.9 | 37.4 | 1.000083 |
| 3700.0 | 231.5 | -51.7 | | | 364.2 | 579.1 | 236.9 | 36.1 | 1.000081 |
| 3750.0 | 226.1 | -52.2 | | | 356.5 | 579.1 | 237.4 | 35.2 | 1.000079 |
| 3800.0 | 220.9 | -52.7 | | | 349.0 | 578.5 | 238.8 | 35.0 | 1.000078 |
| 3850.0 | 215.7 | -53.1 | | | 341.6 | 577.8 | 240.1 | 34.9 | 1.000076 |
| 3900.0 | 210.7 | -53.6 | | | 334.4 | 577.2 | 240.8 | 35.5 | 1.000074 |
| 3950.0 | 205.8 | -54.1 | | | 327.3 | 576.6 | 241.5 | 36.0 | 1.000073 |
| 4000.0 | 201.0 | -54.5 | | | 320.4 | 575.9 | 242.2 | 36.1 | 1.000071 |
| 4050.0 | 196.3 | -55.0 | | | 313.4 | 575.5 | 242.9 | 35.9 | 1.000070 |
| 4100.0 | 191.7 | -55.3 | | | 306.5 | 575.0 | 243.6 | 35.4 | 1.000068 |
| 4150.0 | 187.2 | -55.6 | | | 299.4 | 575.0 | 244.7 | 34.0 | 1.000066 |
| 4200.0 | 182.8 | -55.9 | | | 291.7 | 575.6 | 245.0 | 32.7 | 1.000065 |
| 4250.0 | 178.5 | -56.1 | | | 285.1 | 575.5 | 245.5 | 32.0 | 1.000064 |
| 4300.0 | 174.3 | -56.3 | | | 278.7 | 575.0 | 247.1 | 31.6 | 1.000062 |

AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

THIS PAGE IS BEST QUALITY REPRODUCTION
FROM COPY FORWARDED TO HQ

STATION ALTITUDE 3997.30 FEET MSL
31 MAY 79 1125 HRS MST
ASCENSION NO. 161

UPPER AIR DATA
1510060161
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

| GEOMETRIC ALTITUDE MSL FEET | PRESSURE MILLIBARS | TEMPERATURE AIR DEGREES CELSIUS | REL. HUM. PERCENT | DENSITY GM/CM ³ WATER | SPEED OF SOUND M/S | WIND DATA DIRECTION DEGREES (TH) SPEED KNOTS | INDEX OF REFRACTION |
|--------------------------------|-----------------------|---------------------------------------|----------------------|--|--------------------------|--|---------------------------|
| 4350.0 | 170.2 | -55.5 | | 272.5 | 574.7 | 247.9 | 1.000061 |
| 4400.0 | 166.2 | -55.7 | | 266.3 | 574.4 | 249.2 | 1.000059 |
| 4450.0 | 162.3 | -56.0 | | 260.4 | 574.1 | 250.7 | 1.000058 |
| 4500.0 | 158.5 | -56.7 | | 255.0 | 573.2 | 251.1 | 1.000057 |
| 4550.0 | 154.7 | -57.4 | | 249.8 | 572.2 | 251.3 | 1.000056 |
| 4600.0 | 151.1 | -58.2 | | 244.8 | 571.2 | 251.0 | 1.000055 |
| 4650.0 | 147.4 | -58.6 | | 239.4 | 570.6 | 250.1 | 1.000053 |
| 4700.0 | 143.9 | -58.9 | | 234.0 | 570.2 | 249.3 | 1.000052 |
| 4750.0 | 140.5 | -59.2 | | 228.8 | 569.8 | 248.1 | 1.000051 |
| 4800.0 | 137.1 | -59.5 | | 223.6 | 569.4 | 247.0 | 1.000050 |
| 4850.0 | 133.8 | -59.9 | | 218.6 | 569.0 | 246.7 | 1.000049 |
| 4900.0 | 130.6 | -60.2 | | 213.7 | 568.5 | 247.3 | 1.000048 |
| 4950.0 | 127.5 | -60.6 | | 209.0 | 567.9 | 247.8 | 1.000047 |
| 5000.0 | 124.4 | -61.6 | | 204.6 | 566.8 | 246.9 | 1.000046 |
| 5050.0 | 121.3 | -62.6 | | 200.7 | 565.4 | 250.0 | 1.000045 |
| 5100.0 | 118.4 | -63.5 | | 196.7 | 564.1 | 250.2 | 1.000044 |
| 5150.0 | 115.5 | -64.5 | | 192.7 | 562.8 | 249.0 | 1.000043 |
| 5200.0 | 112.6 | -65.4 | | 188.9 | 561.5 | 247.6 | 1.000042 |
| 5250.0 | 109.9 | -66.4 | | 185.1 | 560.2 | 247.1 | 1.000041 |
| 5300.0 | 107.2 | -67.3 | | 181.4 | 558.9 | 246.7 | 1.000040 |
| 5350.0 | 104.6 | -68.2 | | 177.7 | 557.8 | 245.1 | 1.000039 |
| 5400.0 | 102.0 | -69.1 | | 173.0 | 556.3 | 240.0 | 1.000038 |
| 5450.0 | 99.4 | -69.5 | | 168.4 | 554.7 | 237.2 | 1.000037 |
| 5500.0 | 97.0 | -70.3 | | 164.1 | 553.0 | 234.4 | 1.000036 |
| 5550.0 | 94.5 | -71.1 | | 159.9 | 551.4 | 231.3 | 1.000035 |
| 5600.0 | 92.2 | -71.9 | | 155.8 | 549.4 | 21.5 | 1.000034 |
| 5650.0 | 89.9 | -72.5 | | 150.9 | 547.3 | 22.1 | 1.000033 |
| 5700.0 | 87.7 | -73.4 | | 146.7 | 545.2 | 22.3 | 1.000032 |
| 5750.0 | 85.6 | -74.4 | | 143.4 | 543.1 | 22.1 | 1.000031 |
| 5800.0 | 83.4 | -75.4 | | 140.2 | 541.0 | 22.9 | 1.000030 |
| 5850.0 | 81.4 | -76.2 | | 137.0 | 538.9 | 22.7 | 1.000029 |
| 5900.0 | 79.4 | -77.1 | | 133.9 | 536.8 | 232.9 | 1.000028 |
| 5950.0 | 77.4 | -78.0 | | 130.7 | 534.7 | 232.9 | 1.000027 |
| 6000.0 | 75.5 | -78.6 | | 127.4 | 532.6 | 232.9 | 1.000026 |
| 6050.0 | 73.7 | -79.4 | | 124.1 | 530.5 | 232.9 | 1.000025 |
| 6100.0 | 71.8 | -80.1 | | 120.9 | 528.4 | | 1.000025 |
| 6150.0 | 70.1 | -80.9 | | 117.8 | 526.3 | | 1.000025 |
| 6200.0 | 68.4 | -81.4 | | 114.1 | 524.2 | | 1.000025 |
| 6250.0 | 66.7 | -82.9 | | 110.5 | 522.1 | | 1.000025 |

STATION ALTITUDE 997.30 FEET MSL
 31 MAY 79 1125 HRS MST
 ASCENSION, NO. 101

VRN SIGNIFICANT LEVEL DATA
 1510060161
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

| GEOPOTENTIAL ALTITUDE DECIMETERS | DIRECTION DEG (TN) | WIND DATA | | E-W MPS | DEW PT DEP DEG C | TEMPERATURE | | PRESSURE MILLIBARS |
|--|-----------------------|--------------|------------|------------|---------------------|--------------|---------|-----------------------|
| | | SPEED MPS | N-S MPS | | | AIR DEG C | | |
| 1912. | 9999.** | 9999.** | -9999.** | -9999.** | 99 | -61.5 | 6.520+1 | |
| 1865. | 9999.** | 9999.** | -9999.** | -9999.** | 99 | -65.9 | 7.000+1 | |
| 1801. | 233. | 12. | 7. | 9. | 99 | -66.9 | 7.830+1 | |
| 1724. | 232. | 12. | 8. | 10. | 99 | -64.7 | 8.880+1 | |
| 1704. | 231. | 13. | 8. | 10. | 99 | -66.9 | 9.180+1 | |
| 1653. | 241. | 10. | 8. | 14. | 99 | -67.5 | 1.000+2 | |

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.

STATION ALTITUDE 3997.30 FEET MSL
31 MAY 79 1125 HRS MST
ASCENSION NO. 101

MANDATORY LEVELS
1010060161
S M R

GEODETIC COORDINATES
32.48034 LAT DEG
106.42307 LON DEG

| PRESSURE GEOPOTENTIAL | | TEMPERATURE | | REL. HUM. PERCENT | WIND DATA | |
|-----------------------|--------|----------------|------------------------|----------------------|--------------------------|----------------|
| MILLIBARS | FEET | AIR DEGREES | DEWPOINT CENTIGRADE | | DIRECTION DEGREES(TN) | SPEED KNOTS |
| 850.0 | 4895. | 24.6 | 4.4 | 27. | 27.9 | 2.2 |
| 800.0 | 6624. | 19.8 | 7.4 | 45. | 24.3 | 2.0 |
| 750.0 | 8432. | 15.2 | -2.6 | 29. | 144.5 | 3.8 |
| 700.0 | 10331. | 9.8 | -3.5 | 39. | 156.8 | 8.7 |
| 650.0 | 12331. | 4.3 | -5.4 | 49. | 169.9 | 9.2 |
| 600.0 | 14447. | -1.7 | -8.3 | 61. | 207.5 | 18.1 |
| 550.0 | 16698. | -6.6 | -19.5 | 35. | 223.3 | 28.6 |
| 500.0 | 19117. | -11.8 | -33.1 | 15. | 237.1 | 31.8 |
| 450.0 | 21739. | -17.1 | -33.5 | 22. | 228.0 | 22.7 |
| 400.0 | 24601. | -23.3 | -39.9 | 20. | 220.8 | 27.1 |
| 350.0 | 27760. | -30.9 | -46.5 | 20. | 232.1 | 27.1 |
| 300.0 | 31279. | -40.7 | | | 224.8 | 27.1 |
| 250.0 | 35274. | -49.1 | | | 235.4 | 37.5 |
| 200.0 | 40010. | -54.7 | | | 242.3 | 30.1 |
| 175.0 | 42810. | -55.2 | | | 247.0 | 31.7 |
| 150.0 | 46021. | -58.4 | | | 250.8 | 29.0 |
| 125.0 | 49763. | -61.4 | | | 248.6 | 35.4 |
| 100.0 | 54217. | -67.5 | | | 240.9 | 30.6 |
| 80.0 | 58653. | -66.5 | | | 232.9 | |
| 70.0 | 61300. | -65.9 | | | | 21.8 |

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3997.30 FEET MSL
 31 MAY 79 1125 HRS MST
 ASCENSION NO. 101

MRN MANDATORY LEVELS
 1510060161
 S M R

GEODETIC COORDINATES
 32.48034 LAT DEG
 106.42307 LON DEG

| GEOPOTENTIAL ALTITUDE METERS | DIRECTION DEG (TR) | WIND DATA | | E-W MPS | DEW PT DEP DEG C | TEMPERATURE | | PRESSURE MILLIBARS |
|------------------------------------|-----------------------|--------------|------------|------------|---------------------|--------------|---------|-----------------------|
| | | SPEED MPS | N-S MPS | | | AIR DEG C | | |
| 1869. | 9999.** | 9999.** | -9999.** | -9999.** | 99 | -65.9 | 7.000+1 | |
| 1780. | 233. | 11. | 7. | 9. | 99 | -66.5 | 8.000+1 | |
| 1653. | 241. | 16. | 8. | 14. | 99 | -67.5 | 1.000+2 | |
| 1517. | 249. | 18. | 7. | 17. | 99 | -61.4 | 1.250+2 | |
| 1403. | 251. | 15. | 5. | 14. | 99 | -58.4 | 1.500+2 | |
| 1302. | 247. | 16. | 6. | 15. | 99 | -55.2 | 1.750+2 | |
| 1220. | 242. | 19. | 9. | 16. | 99 | -54.7 | 2.000+2 | |
| 1075. | 235. | 19. | 11. | 16. | 99 | -49.1 | 2.500+2 | |
| 953. | 225. | 14. | 10. | 10. | 99 | -40.7 | 3.000+2 | |
| 840. | 232. | 14. | 9. | 11. | 16 | -30.9 | 3.500+2 | |
| 750. | 221. | 14. | 11. | 9. | 17 | -23.3 | 4.000+2 | |
| 603. | 223. | 12. | 8. | 9. | 16 | -17.1 | 4.500+2 | |
| 583. | 237. | 16. | 9. | 14. | 21 | -11.8 | 5.000+2 | |
| 509. | 223. | 15. | 11. | 10. | 13 | -6.6 | 5.500+2 | |
| 440. | 207. | 9. | 8. | 4. | 07 | -1.7 | 6.000+2 | |
| 370. | 170. | 5. | 5. | -1. | 10 | 4.3 | 6.500+2 | |
| 315. | 157. | 4. | 4. | -2. | 13 | 9.8 | 7.000+2 | |
| 257. | 144. | 2. | 2. | -1. | 18 | 15.2 | 7.500+2 | |
| 202. | 24. | 1. | -1. | -0. | 12 | 19.8 | 8.000+2 | |
| 149. | 28. | 1. | -1. | -1. | 20 | 24.6 | 8.500+2 | |

** WIND DATA NOT COMPUTED DUE TO MISSING RAW AZIMUTH AND ELEVATION ANGLES.